

Appl. No. 10/507,019
Amendment dated February 4, 2008
Reply to Office Action of September 20, 2007

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A centrifugal fan ~~that sucks in air from a rotary shaft direction and blows air out in a direction that intersects a rotary shaft~~, comprising:

an electric motor having said a rotary shaft;

an impeller coupled to said rotary shaft for rotation therewith and configured to suck in air from a rotary shaft direction and blow air out in a direction that intersects a rotary shaft, the impeller including a main plate having a cooling air hole spaced apart from and being coupled to and rotationally driven by said rotary shaft[[;]], said impeller having a plurality of blades provided on the surface of said main plate on ~~the~~ a side opposite ~~an~~ said electric motor, said plurality of blades being and at a positioned on the outer peripheral side of the radially position of outward from said cooling air hole; and

an air guide coupled to said main plate of said impeller for rotation therewith proximate said cooling air hole, said air guide being configured such that, after a portion of the blown out air has been guided to the vicinity of said electric motor and has cooled said electric motor, guides the air flow so that the revolving direction velocity decreases when blown out from said cooling air hole to the side of said main plate opposite said electric motor.

2. (Currently Amended) A centrifugal fan ~~that sucks in air from a rotary shaft direction and blows air out in a direction that intersects a rotary shaft~~, comprising:

a rotary shaft;

an electric motor ~~having~~ configured to rotate said rotary shaft;

a main plate having a cooling air hole and being coupled to and rotationally driven by said rotary shaft;

a plurality of blades provided on the surface of said main plate on ~~the~~ a side opposite an electric motor and ~~at a positioned on the outer peripheral side of the~~ radially outward from position of said cooling air hole, said main plate and said blades being configured to suck in air from a rotary shaft direction and blow air out in a direction that intersects said rotary shaft; and

an air guide coupled to said main plate for rotation therewith proximate said cooling air hole such that, after a portion of the blown out air has been guided to the vicinity of said electric motor and has cooled said electric motor, guides the air flow so that it is blown out toward the side of the main plate in the counter rotational direction when blown out from said cooling air hole to the side of said main plate opposite said electric motor.

3. (Currently Amended) The centrifugal fan as recited in Claim 1, wherein said air guide is formed ~~integrated~~ integrally with said main plate as a single member.

4. (Currently Amended) The centrifugal fan as recited in Claim 2, further comprising:

a cover coupled to said rotary shaft for rotation with said main plate that covers said cooling air hole from the side opposite the electric motor, and that is provided so that it rotates integrally with said main plate;

wherein,

said air guide is formed between said cover and said main plate.

5. (Previously Presented) The centrifugal fan as recited in Claim 4, wherein said air guide has a blade shape inclined rearwards in the rotational direction of said cover.

6. (Previously Presented) The centrifugal fan as recited in Claim 5, wherein said air guide has a volute blade shape.

7. (Previously Presented) The centrifugal fan as recited in Claim 4 wherein said air guide is formed in said cover.

8. (Currently Amended) An air conditioner, comprising:

a ~~the~~ centrifugal fan as recited in Claim 1; having:

an electric motor having a rotary shaft;

an impeller coupled to said rotary shaft for rotation therewith and configured

to suck in air from a rotary shaft direction and blow air out in a

direction that intersects a rotary shaft, the impeller including a main

plate having a cooling air hole spaced apart from said rotary shaft, said

impeller having a plurality of blades provided on the surface of said

main plate on a side opposite an said electric motor, said plurality of

blades being positioned radially outward from said cooling air hole;

an air guide coupled to said main plate of said impeller for rotation therewith

proximate said cooling air hole, said air guide being configured such

that, after a portion of the blown out air has been guided to the vicinity

of said electric motor and has cooled said electric motor, guides the air

flow so that the revolving direction velocity decreases when blown out from said cooling air hole to the side of said main plate opposite said electric motor;

a heat exchanger arranged on the outer peripheral side of said centrifugal fan; and
a casing that houses said centrifugal fan and said heat exchanger.

9. (Currently Amended) The centrifugal fan as recited in Claim 2, wherein said air guide is formed ~~integrated~~ integrally with said main plate.

10. (Currently Amended) An air conditioner, comprising:

a ~~the~~ centrifugal fan as recited in Claim 2; having

a rotary shaft;

an electric motor configured to rotate said rotary shaft;

a main plate having a cooling air hole and being coupled to and rotationally driven by said rotary shaft;

a plurality of blades provided on the surface of said main plate on a side opposite an electric motor and positioned radially outward from said cooling air hole, said main plate and said blades being configured to suck in air from a rotary shaft direction and blow air out in a direction that intersects said rotary shaft;

an air guide coupled to said main plate for rotation therewith proximate said cooling air hole such that, after a portion of the blown out air has been guided to the vicinity of said electric motor and has cooled said electric motor, guides the air flow so that it is blown out toward the side of the

main plate in the counter rotational direction when blown out from said
cooling air hole to the side of said main plate opposite said electric
motor;

a heat exchanger arranged on the outer peripheral side of said centrifugal fan; and
a casing that houses said centrifugal fan and said heat exchanger.

11. (Previously Presented) The centrifugal fan as recited in Claim 5 wherein
said air guide is formed in said cover.

12. (Previously Presented) The centrifugal fan as recited in Claim 6 wherein
said air guide is formed in said cover.

13. (Currently Amended) An air conditioner, comprising:

a ~~the~~ centrifugal fan as recited in Claim 4; having:

a rotary shaft,

an electric motor configured to rotate said rotary shaft,

a main plate having a cooling air hole and being coupled to and rotationally
driven by said rotary shaft,

a plurality of blades provided on the surface of said main plate on a side
opposite an electric motor and positioned radially outward from said
cooling air hole, said main plate and said blades being configured to
suck in air from a rotary shaft direction and blow air out in a direction
that intersects said rotary shaft,

an air guide coupled to said main plate for rotation therewith proximate said cooling air hole such that, after a portion of the blown out air has been guided to the vicinity of said electric motor and has cooled said electric motor, guides the air flow so that it is blown out toward the side of the main plate in the counter rotational direction when blown out from said cooling air hole to the side of said main plate opposite said electric motor,

a cover coupled to said rotary shaft for rotation with said main plate that covers said cooling air hole from the side opposite the electric motor, and that is provided so that it rotates integrally with said main plate and said air guide is formed between said cover and said main plate;

a heat exchanger arranged on the outer peripheral side of said centrifugal fan; and
a casing that houses said centrifugal fan and said heat exchanger.

14. (Currently Amended) ~~An~~ The air conditioner, ~~comprising:~~
~~the centrifugal fan as recited in Claim [15];~~ 13
~~a heat exchanger arranged on the outer peripheral side of said centrifugal fan; and~~
~~a casing that houses said centrifugal fan and said heat exchanger~~
wherein said air guide has a blade shape inclined rearwards in the rotational direction of said cover.

15. (Currently Amended) ~~An~~ The air conditioner, ~~comprising:~~
~~the centrifugal fan as recited in Claim [16];~~ 13
~~a heat exchanger arranged on the outer peripheral side of said centrifugal fan; and~~

~~a casing that houses said centrifugal fan and said heat exchanger~~
wherein said air guide has a volute blade shape.

16. (Currently Amended) ~~An~~ The air conditioner, comprising:
~~the centrifugal fan~~ as recited in Claim ~~[[7;]]~~ 13
~~a heat exchanger arranged on the outer peripheral side of said centrifugal fan; and~~
~~a casing that houses said centrifugal fan and said heat exchanger~~
wherein said air guide is formed in said cover.

17. (Currently Amended) ~~An~~ The air conditioner, comprising:
~~the centrifugal fan~~ as recited in Claim ~~[[11;]]~~ 15
~~a heat exchanger arranged on the outer peripheral side of said centrifugal fan; and~~
~~a casing that houses said centrifugal fan and said heat exchanger~~
wherein said air guide is formed in said cover.

18. (Currently Amended) ~~An~~ The air conditioner, comprising:
~~the centrifugal fan~~ as recited in Claim ~~[[12;]]~~ 16
~~a heat exchanger arranged on the outer peripheral side of said centrifugal fan; and~~
~~a casing that houses said centrifugal fan and said heat exchanger~~
wherein said air guide is formed in said cover.